REMARKS

Claims 5-11, 14 and 20 are pending in this application. By this Amendment, claims 6 and 8 are amended. Reconsideration in view of the following remarks are respectfully requested.

Applicants respectfully submit that they are entitled to entry of this Amendment for at least for the following reason.

37 C.F.R. § 1.104(c) states: "The examiner's action will be complete as to all matters" MPEP § 707.07(i) states: "In every Office action, each pending claim should be mentioned by number, and its treatment or status given."

It is respectfully noted that claim 7 is not mentioned in the Office Action, nor is its treatment or status given. As the Office Action is incomplete, it is respectfully submitted that a new Office Action should be issued clearly mentioning and treating each pending claim. For the reasons discussed below, it is respectfully submitted that the next Office Action should be a Notice of Allowance.

Claims 8-11 and 14 were rejected under 35 U.S.C. § 103(a) over Holler et al. (U.S. Patent No. 5,268,320) in view of Saito et al. The rejection is respectfully traversed.

Claim 8 recites, *inter-alia*, a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with a inter-electrode insulation interposed therebetween, said inter-electrode insulation film having a two-layer structure in which a silicon oxide film and a silicon nitride film are stacked consecutively, said first electrode having a polysilicon surface. The silicon oxide is formed by a process comprising forming the silicon oxide film on the silicon nitride film by a CVD process; introducing a gas containing oxygen and a gas predominantly of Kr into a processing chamber; exciting plasma in said processing chamber by a microwave; and exposing the silicon oxide film to the plasma.

Neither Holler et al. nor Saito disclose or suggest forming a silicon oxide film on a silicon nitride film by a CVD process and exposing the silicon oxide film to a plasma excited from a gas containing oxygen and a gas predominantly of Kr. Holler et al. disclose a conventional ONO stack as an insulation layer and do not disclose or suggest forming a silicon oxide layer on the silicon nitride layer and exposing the silicon oxide layer to a plasma excited from a gas containing oxygen and a gas predominantly of Kr. Saito et al. disclose

forming a silicon oxide film from a Kr/O2 high-density plasma, but do not disclose or suggest exposing a silicon oxide film formed by a CVD process to a plasma. Accordingly, even assuming it would have been obvious to combine Holler et al. and Saito et al., which Applicants do not concede, the combination would not disclose or suggest all the limitations of claim 8 and would not present a *prima facie* case of obviousness.

As discussed above, claim 8 recites that the first electrode has a polysilicon surface, i.e. the silicon film of the first electrode has a polycrystalline structure. The inter-electrode insulation film having the two-layer structure of the silicon oxide film and silicon nitride film stacked consecutively is formed on the first electrode. Saito et al., on the other hand, merely disclose a film formation on a single-crystal silicon substrate.

As disclosed, for example, on page 4, lines 6-16, in the conventional art, the quality of the interface between the polysilicon gate and the oxide film tends to become poor due to the thermal budget effect. Even the use of a low temperature process, such as a CVD process, for forming the oxide film does not form a high quality oxide film, and because of this, conventional flash memory devices had to use a large thickness for the insulation films to suppress leakage current. The invention of claim 8 does not suffer from this drawback.

Each of claims 9-11 and 14 recites, *inter-alia*, exposing a silicon oxide film deposited on said at least one silicon nitride film by a CVD process to atomic state oxygen O* formed by microwave excitation of plasma in a mixed gas of an oxygen-containing gas and an inert gas predominantly of a Kr gas. Moreover, claims 10, 11 and 14 recite that the first electrode has a polysilicon surface, and is allowable for the same reasons discussed above with respect to claim 8.

Holler et al. does not disclose silicon oxide films formed by a CVD process on a silicon nitride film and exposing the silicon oxide film to atomic state oxygen O* formed by microwave excitation of plasma in a mixed gas of an oxygen-containing gas and an inert gas predominantly of a Kr gas. Saito et al. do not cure this deficiency of Holler et al. The combination of Holler et al. and Saito et al. thus fails to present a *prima facie* case of obviousness against claims 9-11 and 14.

Reconsideration and withdrawal of the rejection of claims 8-11 and 14 over Holler et al. in view of Saito et al. are respectfully requested.

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori et al. (U.S. Patent No. 5,304,829) in view of Saito et al. The rejection is respectfully traversed.

Claim 6 recites, *inter-alia*, inter-electrode insulation film having a stacked structure in which a first silicon nitride film, a first silicon oxide film, a second silicon nitride film and a second silicon oxide film are stacked consecutively, said first electrode having a polysilicon surface, the method comprising forming said first and second silicon nitride films by a process comprising introducing a gas containing Kr gas, N_2 gas, and H_2 gas; and exciting plasma in said processing chamber by a microwave to form said first silicon nitride film on said first electrode and to form said second nitride film on said first silicon oxide film and forming said first and second silicon oxide films by a process comprising: introducing a gas containing oxygen and a gas predominantly of Kr into a processing chamber, and exciting plasma in said processing chamber by a microwave to form said first silicon oxide film on said first silicon nitride film and to form said second oxide film on said second silicon nitride film.

Mori et al. does not disclose or suggest forming the silicon nitride films by supplying a gas containing Kr gas, N_2 gas, and H_2 gas and exciting a plasma by a microwave to form said first silicon nitride film on said first electrode and to form said second nitride film on said first silicon oxide film, as recited in claim 6. As disclosed in column 6, lines 30-44, the first silicon nitride film 114 is formed by a CVD method and the second silicon nitride film 116 is formed by a burning oxidation method.

Saito et al. fail to cure the deficiencies noted above in Mori et al. as Saito et al. do not disclose or suggest forming a silicon nitride film. Therefore, even assuming it would have been obvious to combine Mori et al. and Saito et al., which Applicants do not concede, such a combination would not have resulted in the invention of claim 6.

Claim 6 also recites that the first electrode has a polysilicon surface and is allowable for the same reasons discussed above with respect to claim 8.

Reconsideration and withdrawal of the rejection of claim 6 under § 103(a) over Mori et al. in view of Saito et al. are respectfully requested.

In view of the foregoing, the claims are now in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,
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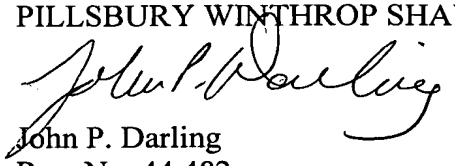

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